

1. A loudspeaker, comprising:

an acoustical enclosure that has an internal wall that divides the enclosure into first and second subchambers, the internal wall being provided with an opening;

5 an electro-acoustical transducer having a vibratable speaker cone, the electro-acoustical transducer being mounted in the opening provided in the internal wall of the acoustical enclosure;

an internal vent provided in the internal wall of the
10 acoustical enclosure for pneumatically coupling the first and second subchambers;

a first external vent provided in a wall of the first subchamber for pneumatically coupling the first subchamber to an exterior environment outside of the acoustical enclosure;

15 a second external vent provided in a wall of the second subchamber for pneumatically coupling the second subchamber to the exterior environment;

wherein a ratio of an acoustic mass of the internal vent to an acoustic mass of the second external vent is in a range of
20 approximately 3/1 to 7/1.

2. The loudspeaker as set forth in Claim 1, wherein the loudspeaker is a broadband loudspeaker.

3. The loudspeaker as set forth in Claim 1, wherein a ratio of a first volume of the first subchamber to a second volume of the second subchamber is in a range of approximately 0.3 to 2.5.

4. The loudspeaker as set forth in Claim 1, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

5. The loudspeaker as set forth in Claim 3, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

6. A loudspeaker, comprising:

an acoustical enclosure that has an internal wall that divides the enclosure into first and second subchambers, the internal wall being provided with an opening;

5 an electro-acoustical transducer having a vibratable speaker cone, the electro-acoustical transducer being mounted in the opening provided in the internal wall of the acoustical enclosure;

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10 an internal vent provided in the internal wall of the
acoustical enclosure for pneumatically coupling the first and
second subchambers;

a first external vent provided in a wall of the first
subchamber for pneumatically coupling the first subchamber to an
exterior environment outside of the acoustical enclosure;

15 a second external vent provided in a wall of the second
subchamber for pneumatically coupling the second subchamber to the
exterior environment;

wherein a ratio of an acoustic mass of the first external
vent to an acoustic mass of the second external vent is in a range
20 of approximately 15/1 to 30/1.

7. The loudspeaker as set forth in Claim 6, wherein the
loudspeaker is a broadband loudspeaker.

8. The loudspeaker as set forth in Claim 6, wherein a ratio
of a first volume of the first subchamber to a second volume of the
second subchamber is in a range of approximately 0.3 to 2.5.

9. The loudspeaker as set forth in Claim 6, wherein the
speaker cone has a front surface in communication with the first
subchamber, and a rear surface in communication with the second
subchamber.

10. The loudspeaker as set forth in Claim 8, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

11. A loudspeaker, comprising:

an acoustical enclosure that has an internal wall that divides the enclosure into first and second subchambers, the internal wall being provided with an opening;

5 an electro-acoustical transducer having a vibratable speaker cone, the electro-acoustical transducer being mounted in the opening provided in the internal wall of the acoustical enclosure;

10 a first means provided in the internal wall of the acoustical enclosure for acoustically coupling the first and second subchambers;

a second means provided in a wall of the first subchamber for acoustically coupling the first subchamber to an exterior environment outside of the acoustical enclosure;

15 a third means provided in a wall of the second subchamber for acoustically coupling the second subchamber to the exterior environment;

wherein a ratio of an acoustic mass of the first means to an acoustic mass of the third means is in a range of approximately 3/1 to 7/1.

B1 12. (Amended) The loudspeaker as set forth in Claim 11, wherein the first means, second means, and third means have respective first, second and third acoustic masses.

13. The loudspeaker as set forth in Claim 11, wherein a ratio of a volume of the first subchamber to a volume of the second subchamber is in a range of approximately 0.3 to 2.5.

14. The loudspeaker as set forth in Claim 11, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

15. The loudspeaker as set forth in Claim 13, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

16. A loudspeaker, comprising:

an acoustical enclosure that has an internal wall that divides the enclosure into first and second subchambers, the internal wall being provided with an opening;

5 an electro-acoustical transducer having a vibratable speaker cone, the electro-acoustical transducer being mounted in the opening provided in the internal wall of the acoustical enclosure;

10 a first means provided in the internal wall of the acoustical enclosure for acoustically coupling the first and second subchambers;

a second means provided in a wall of the first subchamber for acoustically coupling the first subchamber to an exterior environment outside of the acoustical enclosure;

15 a third means provided in a wall of the second subchamber for acoustically coupling the second subchamber to the exterior environment;

wherein a ratio of an acoustic mass of the second means to an acoustic mass of the third means is in a range of approximately
20 15/1 to 30/1.

B2 17. (Amended) The loudspeaker as set forth in Claim 16, wherein the first means, second means, and third means have respective first, second, and third acoustic masses.

18. The loudspeaker as set forth in Claim 16, wherein a ratio of a volume of the first subchamber to a volume of the second subchamber is in a range of approximately 0.3 to 2.5.

19. The loudspeaker as set forth in Claim 16, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.

20. The loudspeaker as set forth in Claim 18, wherein the speaker cone has a front surface in communication with the first subchamber, and a rear surface in communication with the second subchamber.